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Comparative analysis of immune responses in human and Egyptian Rousette bats upon Cedar virus infection

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Multiple fruit bat species within the genus *Pteropus* have been confirmed as reservoir hosts for Henipaviruses, e.g. Nipah virus (NiV), Hendra virus (HeV) and Cedar virus (CedV). Nevertheless, numerous henipaviruses and henipavirus-like viruses are identified in many other bat species worldwide, including Egyptian Rousette bats (*Rousettus aegyptiacus*, ERB), supporting the possible roles of ERB in Henipavirus transmission into livestock and humans. Thus, investigating henipaviral infection in ERB is of great importance to uncover its potential spillover of henipaviruses. As a novel Henipavirus, CedV shares significant similarities with the highly virulent NiV and HeV, while it does not induce any disease in various animal challenge models. It is well-established that human ephrin A2, A5, B1 and B2 are able to mediate the entry of CedV. However, whether ERB cells can support its entry and replication remains unclear. To answer this question, we generated pseudoviruses and the recombinant fluorescent CedV and performed high content microscopy imaging and flow cytometry assays. Our results suggested that ERB ephrin B1 and B2 mainly mediated CedV entry into ERB cells. Further, CedV replication was observed in ERB cells, as well as in human cells. Intriguingly, CedV infection induced a delayed interferon (IFN) expression in ERB cells, indicating IFN antagonism by CedV in ERB cells. Future research will investigate the inhibitory mechanisms in different hosts by CedV.

Keywords

Cedar virus, henipaviruses, *Rousettus aegyptiacus*, immune responses, interferon

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Professional Status of the Speaker

Senior Scientist

Junior Scientist Status

No, I am not a Junior Scientist.

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